Az-Zumar Electronics

AZ-ZUMAR ELECTRONICS

Engineering Excellence in Electronic Systems

Delivering innovative, reliable, and high-performance solutions from concept and design to system development, integration and deployment.

Advanced Electronics | RF & Microwave | FPGA | Embedded | Power | Mechanical

DEFENSE
Mission-ready solutions

AEROSPACE
High-performance systems

TELECOMMUNICATIONS
Reliable connectivity solutions

INDUSTRIAL
Robust design for critical applications

COMMERCIAL
Innovative solutions for a connected world

AGENDA

WHAT WE'LL COVER

01

ABOUT AZ-ZUMAR ELECTRONICS

Who we are and what drives us

02

CORE CAPABILITIES

RF & MW, Embedded, PCB, Power, Mechanical, Repair & Refurbishment

03

OUR ENGINEERING PROCESS

How we take an idea from design to delivery

04

GET IN TOUCH

Contact details

Az-Zumar Electronics

ENGINEERING EXCELLENCE • INNOVATIVE DESIGN
HIGH-RELIABILITY SOLUTIONS • MISSION-READY PERFORMANCE

ABOUT AZ-ZUMAR ELECTRONICS

Built on Precision and Trust

Az-Zumar Electronics, established in 2023, is an emerging engineering company dedicated to the innovation, design, and development of advanced electronic systems. With multidisciplinary expertise in RF & Microwave Engineering, Electronics, FPGA & Embedded Systems, Power Electronics, and Precision Mechanical Design, we develop reliable, high-performance solutions for the defense, aerospace, telecommunications, industrial, and commercial sectors, supporting next-generation radar, communications, surveillance, and electronic warfare applications.

Backed by a professional engineering workforce of 20+ specialists and senior engineers with more than two decades of industry experience, we provide end-to-end engineering services from concept development and system architecture to design, integration, testing, and validation. Our commitment to engineering excellence, innovation, and quality enables us to develop reliable, mission-critical technologies supporting next-generation radar, communication, surveillance, and electronic warfare applications.

Az-Zumar Electronics

OUR MISSION

Deliver innovative, reliable and mission-critical electronic solutions that empower defense, aerospace and industrial systems with precision and integrity.

OUR VISION

To be a leading engineering partner globally, recognized for excellence, innovation and trusted by our customers to deliver the future.

OUR COMMITMENT

Engineering excellence, rigorous quality, timely delivery and long-term support throughout the product lifecycle.

OUR STRENGTH

Multidisciplinary expertise, advanced technologies and a dedicated team committed to mission-ready performance.

OUR VALUES

Integrity, innovation, collaboration, accountability and customer-centric excellence.

CORE CAPABILITIES

RF & MICROWAVE DESIGN

- RF Front-End Design
- Power Amplifiers
- Frequency Conversion
- Radar & EW Systems
- Antenna Systems
- Filter & Matching Networks

EMBEDDED SYSTEMS

- FPGA & DSP
- Embedded Linux / RTOS
- Firmware Development
- High-Speed Interfaces
- Board Support Packages
- System Integration

POWER SYSTEMS

- AC/DC & DC/DC
- High-Voltage Supplies
- Battery Management
- Power Distribution
- EMI/EMC Compliance
- Thermal Management

PCB DESIGN

- HDI & Multilayer PCBs
- RF PCB Layout
- Signal Integrity
- DFM / DFA / DFT
- Impedance Control
- Prototype to Production

MECHANICAL DESIGN

- Electro-Mechanical Design
- Thermal Management
- FEA / CFD Analysis
- Enclosure Design
- Rugged & Compact Design
- 3D Modeling & Prototyping

REPAIR & REFURBISHMENT

- Electronics System Repair
- Technology Refresh & Modernization
- Obsolescence Management
- Upgrade & Retrofit Solutions
- Life Extension & Performance Enhancement
- Testing & Validation

Advanced Solutions
Delivering cutting-edge solutions for complex engineering challenges.

End-to-End Expertise
From concept to design, development & deployment with precision.

Customer Focused
Tailored solutions to meet mission-critical requirements with maximum reliability.

Innovation Driven
Continuous innovation in technology to deliver future-ready solutions.

Quality Commitment
Committed to excellence with rigorous testing and reliability standards.

Az-Zumar Electronics

RF & MICROWAVE DESIGN CAPABILITIES

Our RF engineering team develops high-performance RF and microwave solutions for defense, aerospace, radar and secure communications. Leveraging expertise from UHF to X-Band, we design reliable, mission-critical subsystems with a strong focus on performance, manufacturability and validation.

MISSION-CRITICAL RF SYSTEMS

End-to-end RF subsystem design for surveillance, tracking and AESA radar platforms.

HIGH-POWER RF AMPLIFIERS

GaN & LDMOS CW and pulsed power amplifiers optimized for efficiency, linearity and reliability.

RF FRONT-END DESIGN

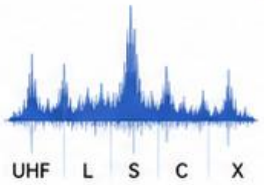
Low-noise receivers, transmitters, filters, switches, combiners and limiter networks.

SIMULATION & VALIDATION

ADS, HFSS, CST and Microwave Office supported by in-house VNA, spectrum analyzer and signal generator testing.

FREQUENCY COVERAGE

UHF, L, S, C and X-Band solutions tailored to customer requirements.



ENGINEERING EXCELLENCE

Design for manufacturability, environmental robustness and defense-grade quality.

CORE COMPETENCIES

- RF & Microwave Design
- GaN/LDMOS Power Amplifiers
- AESA Radar Subsystems
- Low-Noise Receivers
- High-Linearity Transmitters
- System Integration
- Testing & Validation

EMBEDDED DESIGN CAPABILITIES

Our embedded engineering team delivers advanced FPGA, DSP, and embedded computing solutions for mission-critical defense, aerospace and industrial applications. We combine hardware, firmware and software expertise to develop reliable, scalable and high-performance embedded systems.

FPGA & DSP DEVELOPMENT

Xilinx (AMD), Intel (Altera), Lattice, TI and Analog Devices based high-speed processing solutions.

SOFTWARE DEFINED RADIO

SDR platforms using NI, USRP and LimeSDR for radar and communication applications.

EMBEDDED INTERFACES

USB, Ethernet, PCIe, SPI, I²C, UART and CAN for seamless system integration.

WIRELESS TECHNOLOGIES

3G/4G, Wi-Fi, GPS, NFC and RFID based embedded communication systems.

FIRMWARE DEVELOPMENT

Embedded C/C++, RTOS, Linux BSP, device drivers and board bring-up.

DEFENSE APPLICATIONS

FPGA-based radar, surveillance, signal processing and secure embedded systems.

TECHNOLOGY STACK

- FPGA (AMD/Xilinx, Intel, Lattice)
- DSP
- Embedded Linux
- RTOS
- Device Drivers
- SDR Platforms
- Hardware/Firmware Co-Design

POWER DESIGN CAPABILITIES

Our power electronics team designs high-efficiency, defense-grade power conversion and power management solutions for mission-critical radar, aerospace, and electronic warfare platforms. Our expertise spans compact converters, high-voltage systems, intelligent protection, and ruggedized power architectures.

DC-DC & AC-DC CONVERTERS

- High-efficiency custom power converters with low noise
- Wide input/output ranges
- Optimum size, weight & reliability

HIGH-VOLTAGE POWER SYSTEMS

- Robust insulated power solutions for radar, EW and aerospace
- Precision high-voltage generation
- Low ripple and high stability

MODULAR SMPS

- Scalable switch-mode power supplies
- Customized for complex military platforms
- Compact and efficient design

PROTECTION & CONTROL

- Battery management
- Voltage regulation & protection
- Intelligent interlock circuits
- Health monitoring integration

RUGGEDIZED DESIGN

- Thermal management
- EMI/EMC compliance
- Reliable operation in harsh environments
- Shock & vibration resistant

POWER INTEGRATION

- Complete power distribution
- Monitoring and control
- Subsystem integration
- Mission-critical equipment support

POWER EXPERTISE

- DC-DC & AC-DC Conversion
- High Voltage Supplies
- Switch Mode Power Supplies
- Power Sequencing
- Battery Management
- Protection Circuits
- EMI/EMC Optimized Designs

Az-Zumar Electronics

PCB DESIGN CAPABILITIES

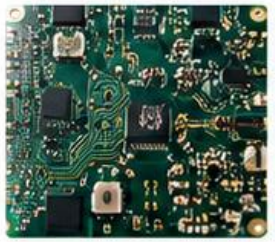
Our PCB design team develops high-reliability, defense-grade printed circuit boards for RF, high-speed digital, power electronics and embedded systems. We deliver optimized layouts that ensure signal integrity, thermal performance, manufacturability and long-term reliability.

HIGH-DENSITY PCB DESIGN

- Rigid, Rigid-Flex, HDI and multilayer PCB designs
- Up to 24+ layers with microvia technology

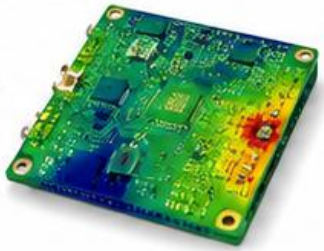
SIGNAL INTEGRITY

- Controlled impedance routing
- DDR, differential pairs and length matching
- High-speed interface optimization



THERMAL & EMI/EMC

- Thermal optimization & stack-up engineering
- EMI/EMC compliant design for military standards



DFM / DFA / DFT

- Design for Manufacturability
- Design for Assembly
- Design for Test
- Test-oriented layouts for high production yield

RF & MICROWAVE LAYOUT

- Optimized RF routing, transmission lines and impedance control
- Grounding & shielding techniques for minimal loss

DEFENSE APPLICATIONS

- PCB solutions for radar, communication, RF front-ends and power electronics
- Rugged, reliable and mission-ready PCB designs

PCB EXPERTISE

- HDI & Multilayer PCBs
- RF & Microwave Layout
- Controlled Impedance
- DDR & High-Speed Routing
- Rigid & Rigid-Flex Boards
- Thermal & EMI/EMC Design
- DFM / DFA / DFT

MECHANICAL DESIGN CAPABILITIES

Our mechanical engineering team delivers rugged, precision-engineered mechanical solutions for defense, aerospace, radar and electronic systems. We combine structural design, thermal engineering and mechanical analysis to ensure durability, manufacturability and mission-ready performance.

ELECTRO-MECHANICAL DESIGN

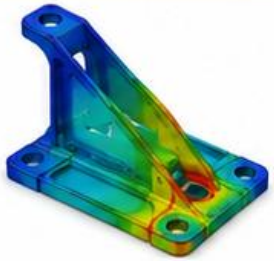
- Precision enclosures, chassis, housings and assemblies
- Optimized for RF, radar and power systems

THERMAL MANAGEMENT

- Passive and active cooling solutions
- Heatsinks, airflow optimization and thermal simulations

STRUCTURAL ANALYSIS

- FEA and CFD simulations
- Vibration, shock, stress and mechanical integrity analysis



RUGGEDIZATION

- MIL-grade mechanical designs for harsh environments
- Shock, vibration and battlefield ready solutions

MANUFACTURING SUPPORT

- Design for manufacturability (DFM)
- CNC fabrication, sheet metal and mechanical integration

QUALITY ASSURANCE

- Dimensional verification and tolerance analysis
- Stage-wise inspection and compliance with defense standards

MECHANICAL EXPERTISE

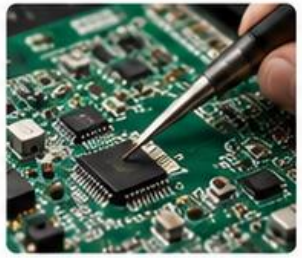
- Electro-Mechanical Design
- Thermal Engineering
- FEA & CFD Analysis
- Rugged Enclosures
- Mechanical Integration
- CNC & Sheet Metal
- MIL-Grade Validation

REPAIR & REFURBISHMENT CAPABILITIES

Our Repair & Refurbishment team restores, upgrades and modernizes complex electronic systems to extend operational life and improve mission readiness. We provide comprehensive fault diagnosis, reverse engineering, technology refresh and qualification services for legacy and defense-grade equipment.

ELECTRONICS REPAIR

- Component-level troubleshooting
- PCB repair and rework
- Restoration of RF, embedded and power electronics



TECHNOLOGY MODERNIZATION

- Upgrade legacy hardware with modern components
- Improve performance, reliability and maintainability
- Preserve system functionality

OBSOLESCENCE MANAGEMENT

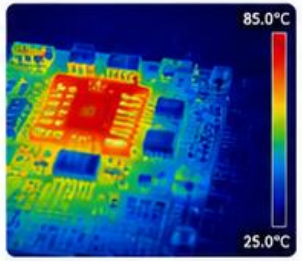
- Replacement of obsolete devices
- Redesign of unsupported circuits
- Equivalent component selection and validation

REVERSE ENGINEERING

- Recreate schematics and PCB layouts
- Generate documentation and BOMs
- Support for unsupported or legacy systems

PERFORMANCE ENHANCEMENT

- Optimize reliability and thermal performance
- Improve efficiency and output
- Maintainability improvements during refurbishment



TESTING & REQUALIFICATION

- Functional, environmental and acceptance testing
- Compliance verification with defense standards
- Verify restored system performance

CORE EXPERTISE

- Electronics System Repair
- Technology Refresh
- Reverse Engineering
- Obsolescence Management
- PCB Rework & BGA Repair
- Performance Optimization
- Life Extension Programs
- System Requalification

IN-HOUSE RF TEST & VALIDATION CAPABILITIES

End-to-end measurement, troubleshooting and acceptance testing using advanced RF instruments and calibrated supporting accessories.

CORE RF TEST CAPABILITY

Our in-house test setup supports complete RF performance verification from board-level debugging to subsystem validation and FAT readiness.

- Gain, output power and compression testing
- S-parameters, return loss and impedance matching
- Harmonics, spurious and spectral purity analysis
- Phase noise, modulation and frequency stability checks
- Mixed-signal timing, control and interface debugging
- Integration testing, qualification support and FAT documentation

SPECTRUM ANALYZER

Spectral purity, harmonics, spurious, occupied bandwidth and noise measurements.

RF SIGNAL GENERATOR

Stable RF stimulus for receiver testing, frequency response and system verification.

VECTOR NETWORK ANALYZER

S-parameters, impedance matching, filters, cables, antennas and RF path validation.

MIXED SIGNAL OSCILLOSCOPE

Digital control, timing, trigger alignment and mixed-signal debugging.

ARBITRARY WAVEFORM GENERATOR

Custom pulse, modulation and stimulus generation for functional testing.

DC POWER SUPPLIES

Biasing, current monitoring, sequencing and controlled power-up validation.

TEST ACCESSORIES & SUPPORTING INFRASTRUCTURE

Precision RF cables, adapters, 50 Ω dummy loads, attenuators, couplers, power dividers, terminators, calibration kits, torque tools and custom test fixtures.

Controlled testing ensures every delivered product is characterized, validated and documented against defined performance and quality requirements.

Az-Zumar Electronics

LOGISTICS & PROCUREMENT SUPPORT

Delivering end-to-end sourcing, procurement and supply-chain solutions for mission-critical electronics programs. Our team ensures secure sourcing, component authenticity, lifecycle management, and on-time material availability for defense and aerospace projects.

STRATEGIC SOURCING

- Global sourcing of electronic, RF, mechanical and COTS components.

SUPPLY CHAIN

- Material planning, logistics coordination and inventory optimization.

LIFECYCLE MANAGEMENT

- Obsolescence monitoring, alternate sourcing and long-term sustainment.

QUALITY & COMPLIANCE

- Traceability, CoCs, export compliance and supplier qualification.

KEY SERVICE AREAS

- Strategic Global Sourcing
- Defense & Aerospace Procurement
- Supplier Qualification
- Supply Chain Risk Mitigation
- Component Lifecycle Management
- Inventory & Warehouse Support
- Export / Import Documentation
- Project Procurement Planning
- Cost Optimization & Vendor Management

Strategic Sourcing | Reliable Supply Chain | Quality Assurance | On-Time Delivery

OUR ENGINEERING PROCESS

A disciplined product development lifecycle from concept to customer delivery.

1. Requirements
2. Architecture
3. PDR
4. Design
5. CDR
6. Prototype
7. Integration
8. TRR
9. Qualification
10. TQR
11. FAT
12. Delivery

ENGINEERING EXCELLENCE

- Experienced multidisciplinary team
- Cross-functional design reviews
- Advanced simulation & verification

DEVELOPMENT & REVIEW GATES

- Requirements Review
- PDR & CDR
- TRR, TQR & FAT
- Risk-based reviews & traceability

PROJECT DELIVERY

- Documentation & traceability
- Rigorous testing & validation
- Customer acceptance & on-time delivery

Structured Reviews | High Quality Standards | Controlled Development | Mission-Ready Delivery

Az-Zumar Electronics

WHY CHOOSE AZ-ZUMAR ELECTRONICS

PROVEN ENGINEERING EXCELLENCE

Successfully delivering indigenous RF, microwave, embedded and power electronics solutions integrated into operational defense systems.

ADVANCED TECHNOLOGY & INNOVATION

Applying modern design methodologies, simulation tools and state-of-the-art technologies to develop high-performance mission-critical solutions.

COMPREHENSIVE MULTI-DISCIPLINARY EXPERTISE

Integrated capabilities spanning RF & Microwave, Embedded Systems, PCB Design, Power Electronics, Mechanical Engineering and Repair & Refurbishment.

DEFENSE-FOCUSED RELIABILITY

Designs engineered for rugged environments, long operational life and compliance with stringent defense and aerospace requirements.

LIFECYCLE SUPPORT

From concept and development to procurement, modernization, repair, refurbishment and long-term product sustainment.

MISSION FOCUSED

Solutions built for defense, aerospace and critical applications.

QUALITY ASSURED

Strict quality processes and compliance with international standards.

CUSTOMER PARTNER

Collaborative approach with full transparency and commitment.

ON-TIME DELIVERY

Efficient execution and timely delivery for every mission.

ENGINEERING EXCELLENCE | INDIGENOUS INNOVATION | MISSION-CRITICAL RELIABILITY | TRUSTED DEFENSE PARTNER

Az-Zumar Electronics

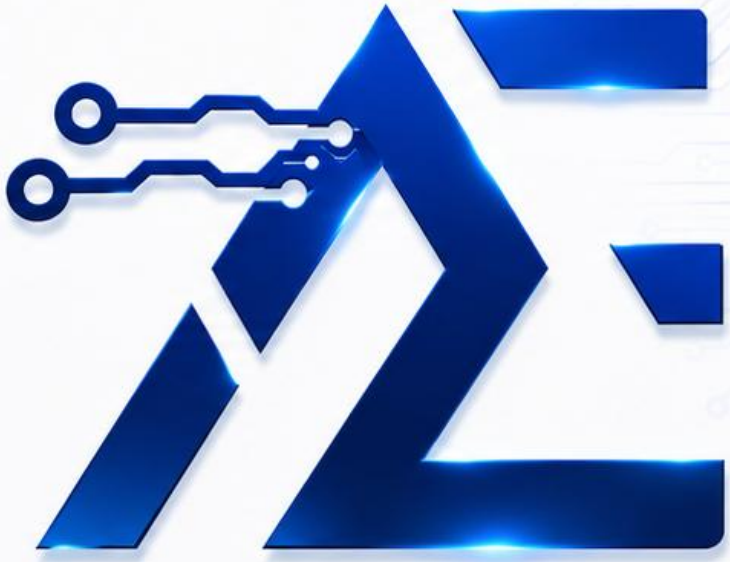
AZ-ZUMAR ELECTRONICS

LET'S BUILD SOMETHING RELIABLE

Landline: 051-2240221 | Mobile: +92-332-5498925

azzumarelectronics@gmail.com | info@azzumar.co

Flat No 4, 1st Floor, Ghazn Arcade Plaza,
School Stop Tarlai, Lehtrar Road Islamabad



Az-Zumar Electronics

ENGINEERING EXCELLENCE | INNOVATIVE DESIGN

HIGH-RELIABILITY SOLUTIONS | MISSION-READY PERFORMANCE

TRUSTED EXPERTISE | INNOVATIVE SOLUTIONS | MISSION-FOCUSED APPROACH | BUILDING RELIABLE FUTURES